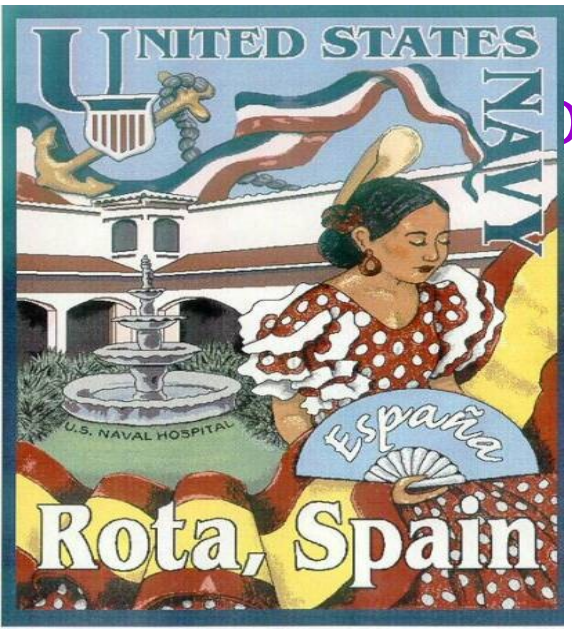
New Navy Taskings for Safety & Health Staff in Local Installation Disaster / Terrorist Attack Response

2005 European Safety-Net Tri-Service Conference

Garmisch, Germany

by

David W. Hiipakka, MPH, CIH
U.S. Naval Hospital, Rota Spain
Industrial Hygiene Dept.



OBJECTIVE(S) OF BRIEF

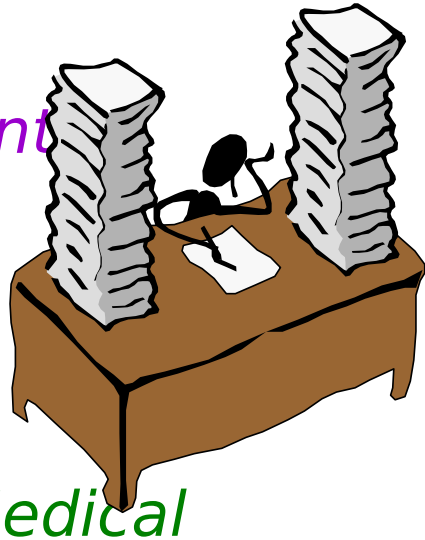
- Summarize forthcoming taskings to local installation Safety & Health personnel for Chemical-Biological-Radiological-Nuclear-Explosive (CBRNE) incident response.
- CBRNE Personal Protective Eqpt. (PPE) considerations.
  - Heat Stress Precautions
  - CBRNE Respiratory Protection Program
- Industrial Hygiene Response Specific Issues
- Web-based Resources for CBRNE Response Planning

CBRNE Response Guiding Documents

- Dept. of the Navy (DON) “Installation Chemical, Biological, Radiological, Nuclear & High-Yield Explosive (CBRNE) Emergency Response Guidelines, June 2004
- OSHA “”Guidelines for Emergency Preparedness & Response”
- Navy Instruction 3440.7 (Draft) “Emergency Management Program at Navy Shore Installations
- New Navy Safety Manual OPNAVINST 5100.23G (Draft) Chapter 34: CBRNE Incidents

Local Safety Office *Emergency Planning* Roles & Responsibilities

- *Will participate / assist in base efforts for:*
  - *Selection of PPE for response crews*
  - *Emergency equipment purchases & review*
  - *Integrating safety into training (formal & field exercise)*
  - *Installation Vulnerability assessments*
  - *Planning notification & recall of "essent personnel"*
  - *Communication of Emergency plans*
  - *Risk analysis and threat assessments*
  - *Ensuring CBRNE response personnel appropriately enrolled into relevant Medical Surveillance (MEDSURV) / Respiratory Protection programs*



Local Safety Office *Emergency Response* Roles & Responsibilities

Designated Safety Representative will:

- *Participate in development of site-specific Health & Safety Plans (HASP)*

- *Serves as Incident Command System, Regional Operations Center (ROC) representative—AND Emergency Operating Center (EOC) safety representative.*

Industrial Hygiene Emergency Planning Support

- Preparing installation CBR Disaster Plan
- IH Consultative support on HAZMAT, chemical detection & ID, PPE selection
- Primary & secondary DECON planning
- Assist in development of Health risk communication plans for shore installations
- Medical surveillance enrollment planning
- Collective Protective Shelter System plans
- Review & implement of exposure monitoring plans
- Provide PPE evaluations in relation to incident(s)

Industrial Hygiene Emergency Response Support

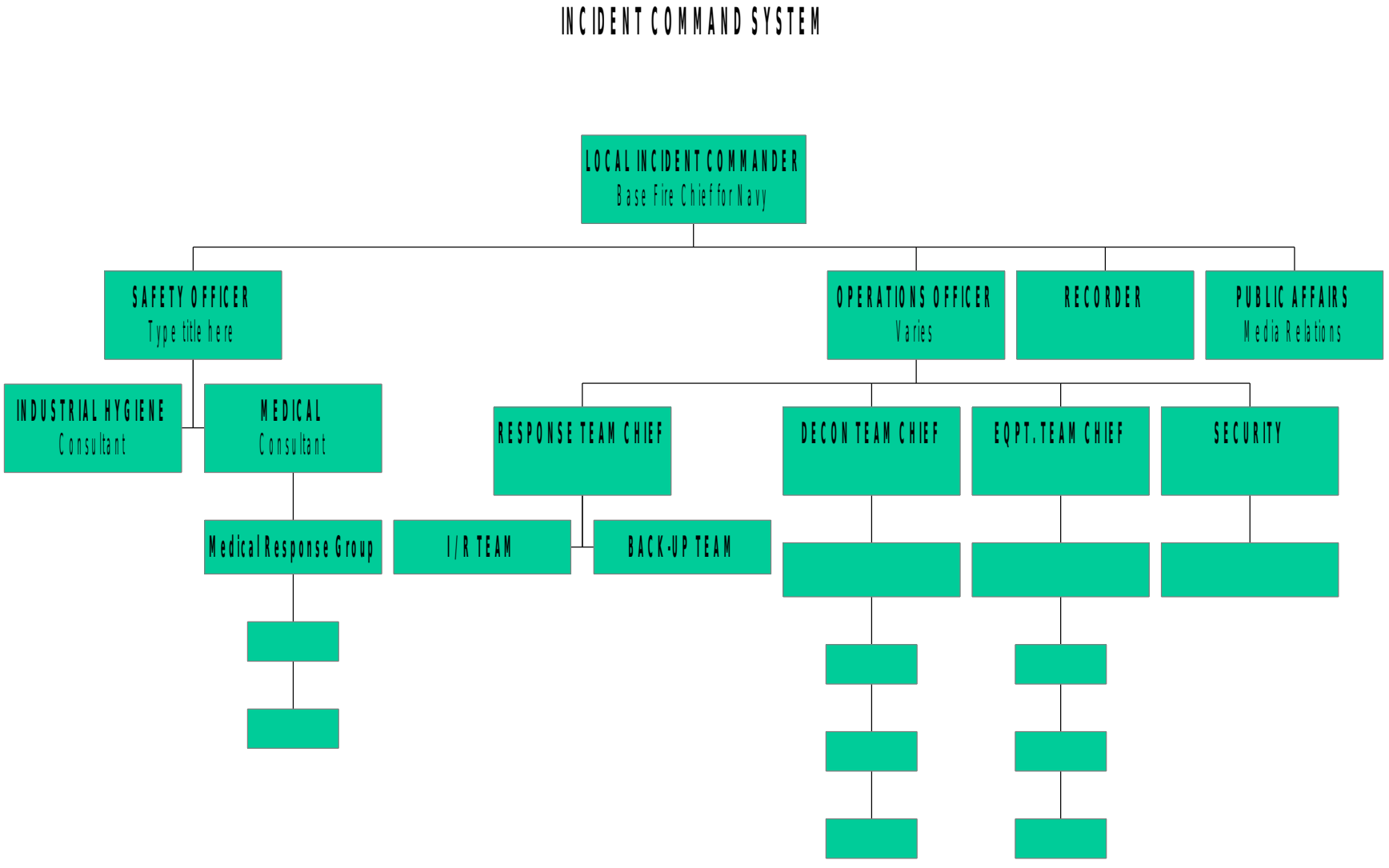
"Where technical IH support exists on the installation, the existing IH support shall include the following capability:"

-- Provides before / after incident consults on capabilities & limitations of chemical & biological detection methods (i.e., interpretation of monitoring data).

– Participates in the interpretation & communication of sampling and monitoring information provided by detection equipment.

– Provide technical expertise in the emergency operations center via coordination with the Incident Commander's (IC) Safety Officer to accurately communicate health risk to the IC.

OSH INTEGRATION INTO INCIDENT RESPONSE



Industrial Hygiene Emergency Response

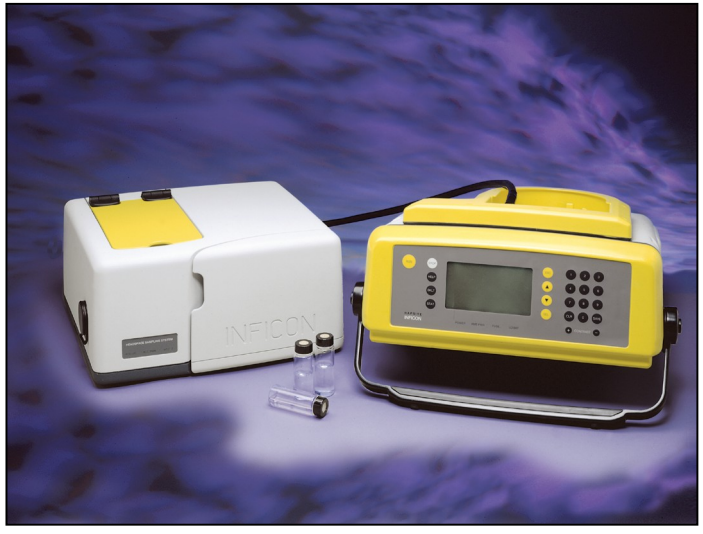
Support: Analytical Measurement

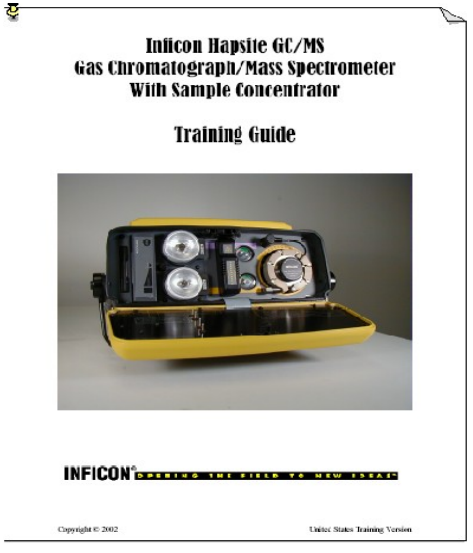
Proposed Tasking: "Regional response capabilities shall be implemented to provide a high level of analytical and risk assessment capabilities that will focus on hazard recognition exposure level determination & risk assessment guidance."

In the case of Naval Station Rota Spain, we'd look to the Naval Environmental Preventive Medicine Units (NEPMUs) No. 2 (Norfolk, VA) or No. 7 (Sigonella-Sicily, Italy) for sophisticated ambient air monitoring, detection & identification of Chemical & Biowarfare agents (i.e., Gas chromatographs with mass spectrophotometry—GC/MS, bioagent sampling, etc.).

Industrial Hygiene Emergency Response Support: Analytical Instrumentation

Detection Systems Fielded to Date:



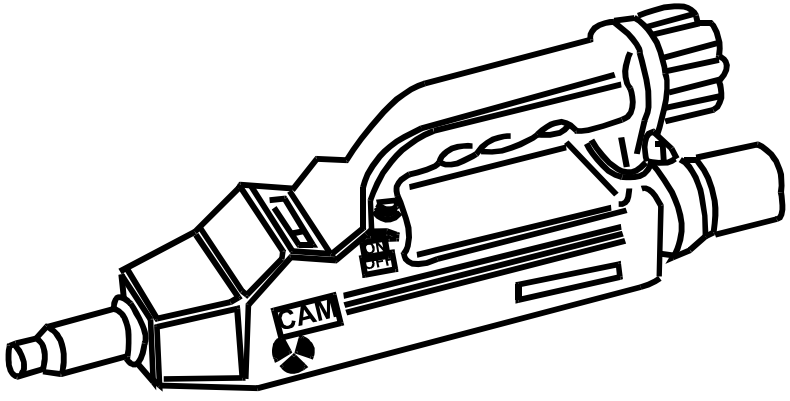


Industrial Hygiene Emergency Response Support: Analytical Instrumentation

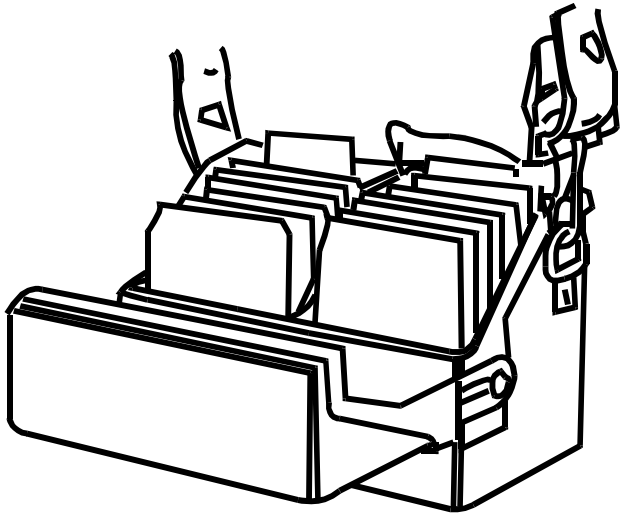
Detection Systems Fielded to Date:

Emergency Response Support: Analytical Instrumentation

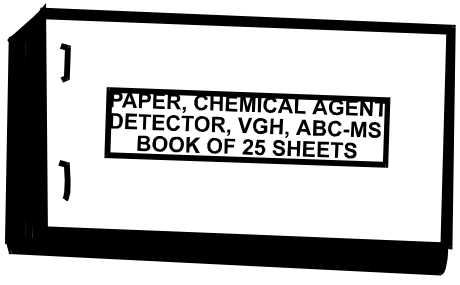
Some Army-Issue Detection Systems Fielded to Date:



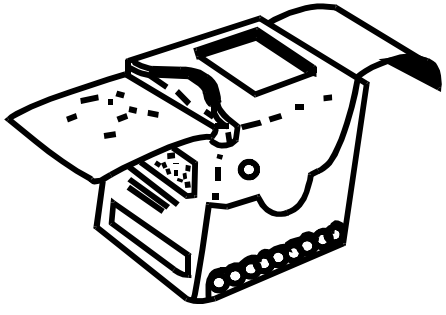
Chemical Agent Monitor



M256 Chemical Agent Detector Kit



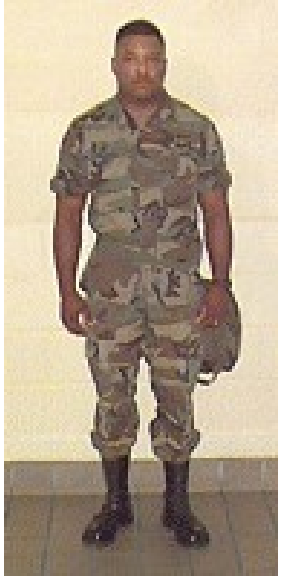
M8 Chemical Agent Detector Paper



M9 Chemical Agent Detector Pape

CBRNE Emergency Response PPE

Mission Oriented Protective Posture (“MOPP”) Suits “specified by Combatant Commanders for all military operations during wartime”



MOPP LEVEL ONE TO FOUR SUITS: The wearing of MOPP gear provides soldiers protection against all known chemical warfare agents, live biological agents, and toxins. A person wearing MOPP gear can neither work for very long nor very fast. They may also suffer mental distress as a result of feeling closed in and can suffer from heat stress and heat exhaustion when working in warm temperatures and at high work rates.

MOPP CBRNE PPE ISSUES

1) MOPP IV level protection NOT equivalent to Level C HAZMAT PPE protection because it's "Joint Service Light-Weight Integrated Suit Technology (JSLIST) will not pass NFPA 1992 penetration testing criteria.

2) Military Waiver: *"Military personnel stationed overseas are permitted to wear MOPP gear, including military gas masks (e.g., M40A1 or MCU-A/P) in lieu of Level C protection during 1st response operations only if and when directed by the Theater Combatant Commander"*

CBRNE RESPIRATORY PROTECTION PPE ISSUES

1) ROLES & RESPONSIBILITIES: The local installation Respiratory Protection Program Manager (RPPM) having cognizance over base first responders will be assigned as the local CBRNE RPPM. *(NOTE: At most Navy bases the Safety Office runs the respirator program).*

2) *SELECTION:*

(a) *SCBAs for Level A & B response*

(b) (b) *NIOSH-approved CBRN agent approved respirators for Level C (Cur brand "Millennium" model and Na (MCU-2A/P).*

(c) *Medical Facility Secondary DECON Stations:*

Butyl rubber hooded PAPRs with combo OV / Acid gas / HEPA filters.

3M "Breathe – Easy PAPR with butyl rubber hood

CBRNE RESPIRATORY PROTECTION PPE ISSUES

3) RESPIRATOR USE LIMITATIONS:

(a) NIOSH CBRN agent approved SCBAs shall not be worn beyond six hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation.

(b) NIOSH CBRN agent approved air purifying respirators shall not be worn into IDLH atmospheres or those with less than 19.5% oxygen. Must not be worn beyond eight hours after initial exposure to chemical warfare agents to avoid permeation potential. NOTE: If liquid exposure encountered, the respirator can't be worn past only two hours.

CBRNE RESPIRATORY PROTECTION PPE ISSUES

4) FIT TESTING: *Quantitative method required for all "**Tight-fitting**" masks, using only the "porta-count" or military TDA-99M /JSMLT * (* to be distributed to all Navy fleet and shore facilities thru CBR Defense Program Office central funding).*

CBRNE RESPIRATORY PROTECTION PPE ISSUES

5) RESPIRATOR CARTRIDGE CHANGE-OUT GUIDANCE:

(a) *Recovery Situations:* When exposure conditions are known, air-purifying filters may be used against gases & vapors (including those with poor warning properties) up to their maximum use concentrations as long as a cartridge change-out schedule is developed & implemented.

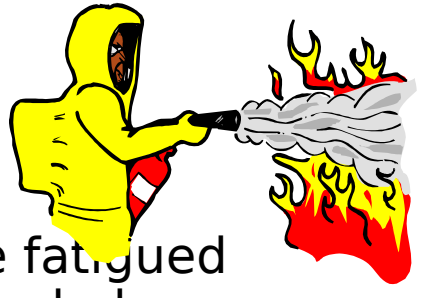
(b) NO IH Exposure Sampling Data:

--Security Guards: Cartridge changes every 8-hour work shift.

--Secondary DECON Stations: Change every 2.5 hours

OTHER IH-RELATED CBRNE INCIDENT ISSUES

- HEAT STRESS
  - Protective 1st responder PPE can rapidly become hot, heavy & restrictive even under only mild to moderate activity.
  - Incident Commanders (IC) should consider circumstances of each incident to make suitable provisions for rehydration, rest & rehabilitation of response crews:
    - Medical evals & treatment
    - Food / fluid replenishment
    - Relief from extreme climate conditions
    - Utilization of command structure to provide fatigued team members relief & reassignment as needed



CBRNE INCIDENT HEAT STRESS ISSUES, Con't.

- HEAT STRESS PREVENTIVE MEASURES
  - REHABILITATION AREAS: Shall be considered by IC for any activity / incident that's "large in size—long in duration—and/or labor intensive." Also warranted for climatic conditions above heat stress Index (i.e., WBGT) of 90 degrees F or Cold Stress Index below 10 F.
  - HYDRATION Incident Commanders (IC) should provide water & electrolytes during emergency incident work—regardless of climate conditions.
  - NOURISHMENT: The IC will provide food at scenes incidents" (> 3 hours).

- Utilization of command structure to provide fatigued team members relief & reassignment as needed

CBRNE INCIDENT HEAT STRESS

- HEAT STRESS PREVENTIVE MEASURES
  - REST: Response crew members should rehydrate (minimum 8 ounces liquid) while SCBA cylinders are being changed. NOTE: *In ALL cases, objective eval of worker fatigue levels shall be the criteria for rehabilitation time.*
  - RECOVERY AREA: A/C environment acceptable after an ambient temperature cool-down period.
  - MEDICAL EVALUATION: A "Medical Response Group" should be formed by qualified staff capable of examining members, evaluating vital signs, making proper dispositions to return to work area OR referral to medical facilities as needed, etc.

- Utilization of command structure to provide fatigued team members relief & reassignment as needed

WEB-BASED RESOURCES

- Emergency and Terrorism Preparedness for Environmental Health Practitioners Web site at
- **http://www.cdc.gov/nceh/ehs/ETP/default.htm.**

- **Chemical and Biological Defense Information Analysis Center (CBIAC). The CBIAC is a DoD Information Analysis Center: http://www.cbiac.apgea.army.mil/index.html**

- **Dept of Homeland Security Chemical Threat http://www.ready.gov/chemical.html**

- National Response Plan, December 2004.
- http://www.dhs.gov/dhspublic/interapp/editorial/editorial_0566.xml
- http://www.dhs.gov/interweb/assetlibrary/NRP_FullText.pdf

- **U.S. Army** : Chemical Materials Agency http://www.cma.army.mil/

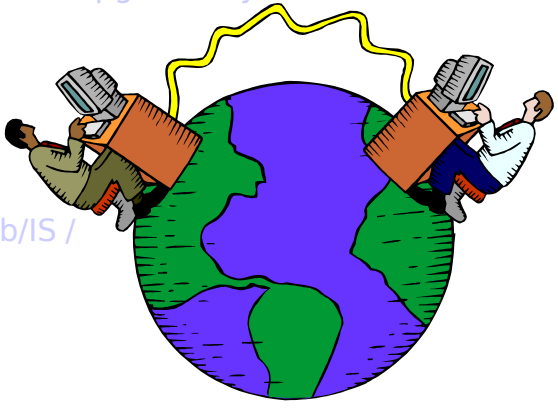
- U.S. Army Center for Health Promotion & Preventive Medicine, Chemical Exposure Guidelines http://www.hard-target.net/htsb81.pdf

- U.S. Army Medical Research Institute of Chemical Defense http://chemdef.apgea.army.mil/

- **Federal Emergency Management Administration (FEMA)**
- Hazardous Materials Guide for First Responders
- http://usfa.fema.gov/fire-service/hazmat/hazmatguide/hmgfr2e.shtm

- Online FEMA Training Courses: http://www.training.fema.gov/emiweb/IS /
- Terrorism: http://www.fema.gov/hazards/terrorism/

- **OSHA's Emergency Preparedness and Response Page** http://www.osha.gov/SLTC/emergencypreparedness/index.html



SUMMARY

- For local installation shore OSH staff, *MUCH unknown* about CBRNE risks & their responsibilities in the case of an incident —with *MUCH to learn*.

- Base Safety & IH offices should coordinate a joint, united team approach to presenting their services to local Disaster Preparedness / CBRNE Contingency offices.

- Base Safety & IH offices need to size up existing physical & human resources against forthcoming CBRNE planning and response taskings:
  - Can current staffing manage these new responsibilities ?
  - Additional staff, equipment & training $$ needed (Tapping into Homeland Security / DoD funding a possibility) ?

  ***Avoiding duplication of effort / wasteful $$ expenditure vital !!*

- IH Staff should be contacting regional CBRNE agent air monitoring & detection specialty teams to establish relationships NOW—vice searching frantically when an incident goes down.

AUDIENCE QUESTIONS / COMMENTS ??

- Any observations / “War Stories” to share for group “Lessons Learned”

CONTACT DATA

- DAVE HIIPAKKA, U.S. NAVAL HOSPITAL, ROTA SPAIN
- DSN 727-2783
- E-mail: dwhiipakka@rota.med.navy.mil